

Ending preventable stillbirths 1



Stillbirths: progress and unfinished business

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This first paper of the *Lancet* Series on ending preventable stillbirths reviews progress in essential areas, identified in the 2011 call to action for stillbirth prevention, to inform the integrated post-2015 agenda for maternal and newborn health. Worldwide attention to babies who die in stillbirth is rapidly increasing, from integration within the new Global Strategy for Women's, Children's and Adolescents' Health, to country policies inspired by the Every Newborn Action Plan. Supportive new guidance and metrics including stillbirth as a core health indicator and measure of quality of care are emerging. Prenatal health is a crucial biological foundation to life-long health. A key priority is to integrate action for prenatal health within the continuum of care for maternal and newborn health. Still, specific actions for stillbirths are needed for advocacy, policy formulation, monitoring, and research, including improvement in the dearth of data for effective coverage of proven interventions for prenatal survival. Strong leadership is needed worldwide and in countries. Institutions with a mandate to lead global efforts for mothers and their babies must assert their leadership to reduce stillbirths by promoting healthy and safe pregnancies.

The 2011 call to action for stillbirth

Historic achievements have been made for women's and children's health in the past 15 years.¹ Yet, 2.6 million women experience the death of their babies in stillbirth in the last trimester of pregnancy or during labour.²⁻⁵

In 2011, the *Lancet* Series on stillbirths reviewed the status of stillbirths^{2,6} and evidence for cost-effective interventions that could save the lives of 1.1 million babies annually^{7,8} and provide triple return on investments with prevention of newborn and maternal deaths.⁹ The call to action covered crucial activities for stillbirth reduction:¹⁰ international and country targets for stillbirth prevention; improved monitoring of stillbirths, their causes, and disparities; inclusion of stillbirth prevention in maternal and newborn health plans and research; and action against stigma, which adds burden to families and hampers societal engagement in stillbirth issues.

That Series received wide press coverage, reaching almost 1 billion people and generating a substantial response not only from academia and organisations but also from the public.¹¹ Yet, unlike efforts for maternal and newborn survival,^{1,12,13} no systematic monitoring of progress followed after the Series. Changes in global health policy are typically noted over many years,^{14,15} but despite the restricted time for change, an update on progress, potential solutions, and priority actions is essential to underpin operationalisation of the UN Sustainable Development Goals,¹⁶ the Global Strategy for Women's, Children's and Adolescents' Health 2016–30 (Global Strategy),¹⁷ and the Global Strategy's supporting Global Financing Facility.¹⁸ Our findings in this Series inform a renewed call to action.¹⁹

In this first paper of the *Lancet* Ending preventable stillbirths Series,^{4,19-21} the objective is to review progress in critical areas identified in the 2011 call to action.¹⁰ We adopted a heuristic approach to policy analysis used

in maternal and newborn health to learn how these initiatives created change,^{15,22-25} supplemented with a framework of determinants of political priority in global health, to explore why stillbirths are prioritised or why not (figure 1).²² We reviewed five key domains: stillbirths on the worldwide maternal and newborn health agenda, formulation of global and national policies, funding and implementation of programmes, development of capacity for monitoring and research, and the role of leadership and partnerships. For leadership and partnerships, we used the framework for global health network analysis previously applied to newborn mortality (table 1, appendix).^{28,29}

Agenda setting and prioritisation

The *Lancet* Stillbirths Series exposed a gap between the large stillbirth burden and the absence of this issue on the global maternal and newborn health agenda,^{2,6} and called on the international community to include stillbirths in all relevant health reports and initiatives.¹⁰ Agenda setting is crucial, as shown by actions at the country level for maternal and newborn health that followed the policy norms advanced by the Millennium Development Goals and the 2010 Global Strategy.^{1,12,29-31} The *Lancet* Stillbirths Series addressed issue characteristics and ideas that hampered prioritisation of stillbirth and called on stakeholders to address barriers in the political context and in actor power (figure 1).^{2,10}

Several themes presented among the key messages in the *Lancet* Stillbirths Series relate directly to these four domains of the framework for political priority in global health (figure 1, table 2). Among issue characteristics, the Series presented stillbirth rate and estimates of cause as credible indicators of burden,^{3,6,32} and evidence for simple and cost-effective preventive interventions to integrate into health systems.⁷⁻⁹ Ideas included the

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Key messages

Stillbirth prevention prioritisation

Stillbirth prevention has firmly emerged in the convergence of priorities for the mother and her baby and is integrated into global initiatives such as the Every Newborn Action Plan and the Global Strategy for Women's, Children's and Adolescents' Health.

Policy development needs

Policy and guidance that address the entire continuum of prenatal health and survival through high quality antenatal care and care at birth are being developed, but no progress has been made in efforts to address stigma and taboos associated with stillbirths, or in the support given to affected women and families.

Programme implementation for stillbirth prevention

Countries responding to the Every Newborn Action Plan are in the process of implementing programmes and targets that, if achieved, would prevent one in four stillbirths worldwide. Still, in most countries, implementation of the recommended community actions and health interventions for prenatal health is generally low. Hardly any development funding for implementation has been disbursed.

Improvements for monitoring and accountability

Routine data for stillbirths are improving but accountability for high quality antenatal care and care at birth needs to use antepartum and intrapartum stillbirth as core indicators. Health information systems and indicator development show promise but minimal data are available for effective coverage of the essential interventions.

Research into stillbirths

Progress has been made in research efforts for high-burden settings, but compared with the stillbirth burden, research continues to be underdeveloped and underfinanced.

Leadership and partnership opportunities

The network of organisations addressing stillbirth is expanding, but is underused and is reliant on individuals rather than the core global governance structure of UN agencies and partnerships. These agencies and partnerships must seize this important opportunity to collaborate for prenatal health and survival.

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portrayal of stillbirths as a neglected issue, with devastating and stigmatising losses of babies for mothers and fathers that need to be registered and valued. Aligned with the emerging norm of an integrated continuum of care for the inextricably linked mother and baby,³³ stillbirths were recognised as babies dying of preventable causes, especially intrapartum, which were inseparable from major causes of maternal and newborn deaths. The *Lancet* Stillbirths Series added rate, cause, and estimates of intervention effectiveness into the Lives Saved Tool, to report a triple return on investments for integrated prevention of stillbirths and maternal and newborn mortality (figure 1, table 2).⁷

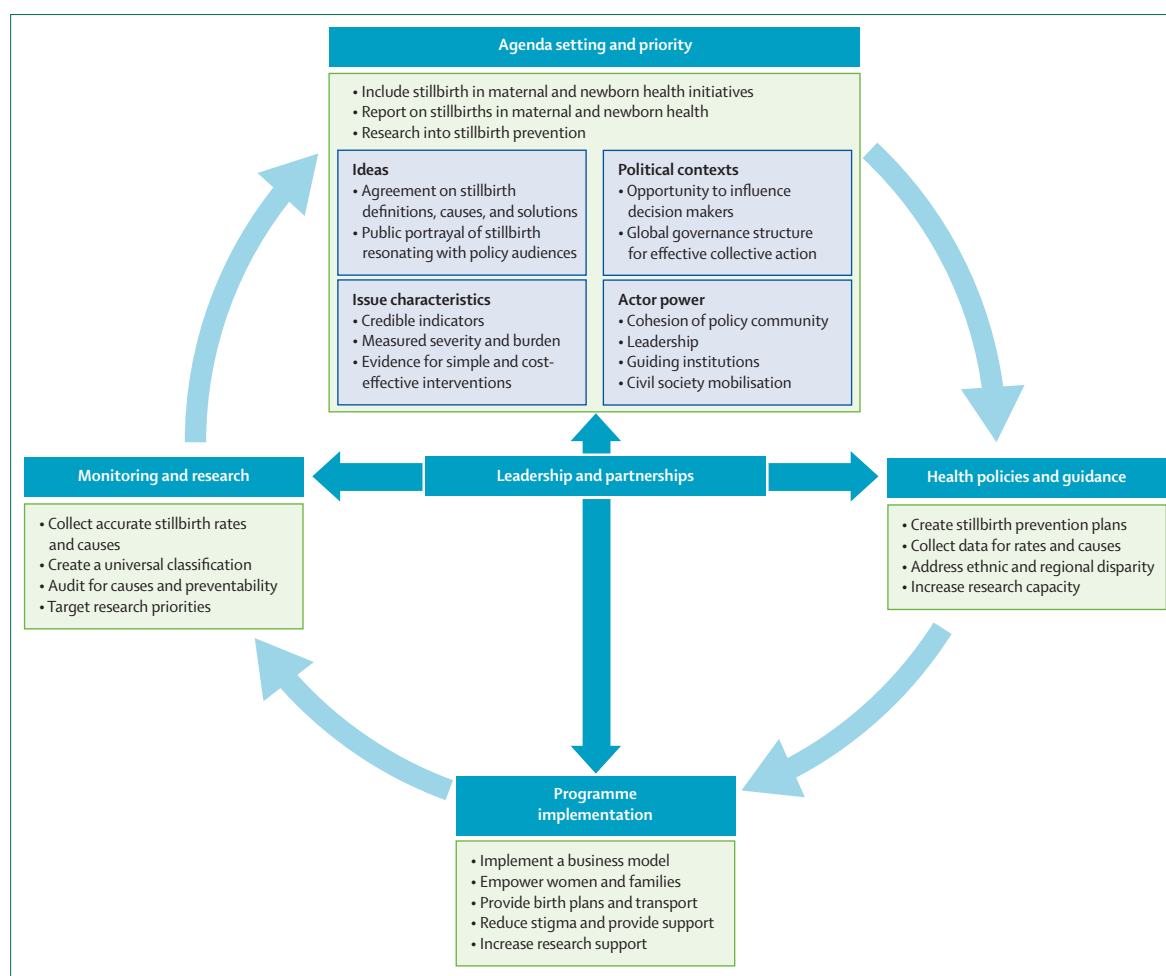
To assess evidence of adoption of such ideas and issue characteristics shown in the *Lancet* Stillbirths Series in the activities and new initiatives of global maternal and newborn health agencies, commissions, and partnerships, a comprehensive document review was completed (table 2, appendix). The integrated continuum of quality care for the interlinked mother and baby is a widely adopted theme, particularly in new initiatives. Although all documents including stillbirth did so in a broader maternal

and newborn health context, these themes had little correlation with stillbirth priority, neither in qualitative or quantitative analyses. Of all themes among ideas (figure 1), the triple return on investment theme, implicitly acknowledging the burden, lives lost, and interlinked causes and solutions, was most frequently adopted. All subsequent maternal and newborn health documents with investment cases included stillbirths averted, even when this triple return theme was the only mention of stillbirth.¹⁸ Additional common themes included presentation of cost-effective preventability, and rates and burden of stillbirth. We noted this finding irrespective of any explicit priority for stillbirth prevention, indicating that these themes might be beneficial but are insufficient alone to create priority. No documents addressed stigma associated with stillbirths.

In initiatives with explicit calls for stillbirth prevention or targets, two correlated portrayals of stillbirth stand out. First, stillbirths are humanised as babies that have died, rather than only enumerating them as stillbirths. Second, prenatal and newborn health are shown as an inseparable continuum, whether in pathology (shared pathophysiology with preterm birth, low birthweight, and newborn deaths) or health (prenatal biological potential for health). These concepts must be reinforced to overcome pervasive barriers identified in the *Lancet* Stillbirths Series: the stigma that impedes women's voice, and the fatalism that stillbirths, as previously for newborn deaths,²⁹ are not amenable to prevention and are lesser losses than newborn deaths.^{2,12,21}

Figure 2 illustrates the political context in which maternal, newborn, and child health agencies and partnerships have written annual reports to support the Every Woman Every Child Initiative: the Millennium Development Goal targets for maternal and child deaths were the dominating so-called supernorm,³¹ shaping policy attention and driving behaviour visible on the maternal and newborn health agenda. The major UN agencies pursued a joint mission to "ensure that health plans are [Millennium Development Goal] MDG-driven and performance-based".³⁴ The reports' objectives were to convey efforts to achieve these targets and compliance with recommendations to support these goals. In the Millennium Development Goals era, little opportunity was available to focus on stillbirths, which did not directly count towards the targets, unlike newborns. In review of these reports, only the unfinished business stillbirth theme was related to the Millennium Development Goals (appendix).

The *Lancet* Stillbirths Series swayed discussions for the post-2015 agenda, onto which stillbirth rapidly emerged. WHO's multistakeholder global action report on preterm birth emphasised the stillbirth burden shown in the *Lancet* Stillbirths Series and the shared nature of causes and solutions with preterm births.³⁵ Global agencies, donors, and maternal and newborn health organisations led by UNICEF and WHO, presented *Every Newborn: An*



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See Online for appendix

For the **Lives Saved Tool** see <http://livesavedtool.org>

Figure 1: The *Lancet* Stillbirths Series call to action in a heuristic approach to policy analysis and determinants of priority

The heuristic approach to policy analysis⁴⁵ (blue) linked to the *Lancet* Stillbirths Series' (2011) call to action priorities³⁰ (green) and the framework of determinants of global health political priority²² (dark blue).

Action Plan To End Preventable Deaths to WHO's Executive Board in 2014,³⁶ integrating intrapartum stillbirth prevention into the plan.³⁷ Countries, individuals, professional associations, and non-governmental organisations engaged strongly in consultations, and countries specifically requested stillbirth prevention targets.³⁸ The World Health Assembly endorsed the Every Newborn Action Plan, requesting progress reports towards targets and urged member states to implement these policies and strengthen monitoring.³⁹ In parallel, the independent Expert Review Group, a UN initiative monitoring accountability for women and children, called to integrate stillbirth into the post-2015 agenda.^{12,40} This group requested a Global Investment Framework for Women's and Children's Health, the precursor of the Global Financing Facility to support the new Global Strategy, both incorporating stillbirths in their investment cases on the basis of the Lives Saved Tool.^{18,41} The UN Population Fund's 2014 *State of the World's Midwifery*⁴² and the *Lancet* Midwifery Series⁴³ stressed midwifery's

role in preventing stillbirths. This emphasis was reiterated in the Strategies toward Ending Preventable Maternal Mortality,⁴⁴ endorsed by the global agencies, donors, and professional organisations, calling for stillbirth monitoring and setting "to protect and support the mother-baby dyad"⁴⁴ as a guiding principle for action. The Every Newborn Action Plan and Strategies toward Ending Preventable Maternal Mortality subsequently promoted integrated strategies covering the full continuum of care.⁴⁵ The 2015 progress report for the 2010 Global Strategy identified stillbirths as a neglected area for future priority action.³⁰

Many aspects of how the *Lancet* Stillbirths Series framed the issue of stillbirths have resonated with global maternal and newborn health initiatives, shown by firm integration of stillbirth in the 15 scoping papers for the new Global Strategy.⁴⁵⁻⁴⁷ Many organisations have endorsed new initiatives for stillbirth, showing a shift in priority, compared with previous activity reports (appendix). The new Global Strategy has been subjected

	Topics in the <i>Lancet</i> Stillbirths Series (2011)	Methods and data sources
Agenda setting and prioritisation	Address stillbirths in all relevant MNH international reports; include stillbirth reduction targets in all relevant MNH initiatives	Reviewed annual reports for global health agencies, partnerships, commissions, or other platforms to support Every Woman, Every Child and reviewed inaugural reports for new MNH initiatives; themes from the key messages of the <i>Lancet</i> Stillbirths Series (2011) were manually identified, coded, and analysed in NVivo; use of these themes was contextualised to the framework of political priority; ²² interviews with organisational representatives working directly or indirectly on stillbirth issues, with various methods; interviews were analysed for common themes and organisational networks ¹⁹
Policy formulation	Create a plan for stillbirth reduction; audit stillbirths; provide bereavement support	Reviewed health plans, policies, and strategies for high-burden countries in public databases; "stillbirth"* was searched for; available documents were assessed for the <i>Lancet</i> Stillbirths Series in 2011 call to action topics, supplemented with information from countries with the highest burden of stillbirth for status of stillbirth in national planning and these results were combined with the Every Newborn Action Plan progress report (appendix)
Programme implementation	Reduce stigma; ensure empowerment of women; set up pregnancy improvement committees; provide birth plans and transportation	Analysed the number of implementation projects and total spending on stillbirth from the Organisation for Economic Co-operation and Development Creditor Reporting System database, from 2002 to 2013 ^{26,27}
Monitoring and research	Report stillbirth rates and causes of death; collect accurate data on stillbirth rates and causes of death; create a universal classification system; increase support for those affected; increase research capacity; assess disparities; include stillbirth as an outcome in relevant research	Reviewed stillbirth data and modelled results; ⁴⁵ coverage indicator levels were extracted from publicly available databases and sources (appendix); surveys of health facilities were identified and assessed for inclusion of questions about indicators related to stillbirth; analysis of research funding for maternal and newborn health from publicly available databases of 11 not-for-profit institutions (appendix pp 43–45); MEDLINE, Embase, and PsycINFO were searched for "stillbirth"* literature between 2000 and 2014; assessed total volume and time trends, to compare documents from high-burden countries and low-burden countries; qualitative analysis was done with NVivo into titles and abstracts of stillbirth research and identification of articles reporting on the research priority topics of the <i>Lancet</i> Stillbirths Series (2011); all registered clinical trials within WHO's International Clinical Trials Registry Platform were assessed for use of terms related to "stillbirth"*
Leadership and partnerships	Implement effective business models	Themes noted in the reports and initiatives and identified by interview respondents were reassessed in relation to a framework to understand global health networks, specifically relating to leadership and partnerships; we acknowledge the limitations of our insider role as members of the stillbirth network, although acting as observers

See appendix for full details. MNH=maternal and newborn health. **Stillbirth* indicates stillbirth and all synonyms.

Table 1: Summary of materials and methods by policy domains

	Themes	Progress	Incomplete tasks
Ideas	Stillbirths are portrayed as babies that die; stillbirth prevention is part of a triple return on investment; stillbirths need to be counted; improved data for stillbirth are needed; stillbirth prevention is part of an integrated continuum of care in MNH; stillbirth is a loss to mothers and families; stillbirth is associated with stigma	Global organisations that refer to stillbirths as babies and acknowledge the continuum from prenatal through newborn health, typically prioritise stillbirth prevention; most groups include lives saved from stillbirth in their investment case; the Global Strategy 2016–30 promotes action on stillbirth prevention, supported by ENAP and EPMM; stillbirth prevention is increasingly recognised as integral to quality in the continuum of care	Humanisation of stillborn babies and recognition of the importance of prenatal health has been insufficiently adopted—in particular in country-level policies; accountability to the investment cases is scarce—no funding for stillbirths has yet materialised; CRVS and health information systems need strengthening to systematically count stillbirths; loss and stigma are not mentioned as key issues in any of the global policy documents assessed
Issue characteristics	Stillbirth is part of the mortality burden in MNH; stillbirths are preventable; antenatal care and care at birth can prevent stillbirth; quality of care is important for stillbirth reduction; perinatal audit is essential for stillbirth reduction; cost-effective interventions to reduce stillbirths exist	Stillbirth data are increasingly available, stillbirth is now a WHO core 100 indicator and mortality will be monitored by WHO and reported to the WHA; preventability of stillbirths is widely recognised; effective interventions to prevent stillbirth, and associated costs, have been included in the Lives Saved Tool and the OneHealth Tool; feasibility of prevention is supported by WHO guidance for antenatal care, the broader quality of care in MNH, and perinatal audit	A dearth of data for intrapartum stillbirth and causes is available; coverage data for interventions are often not available in the highest burden countries; the range of stillbirth definitions hamper comparisons; the exclusion of stillbirth from the global burden of disease, DALYs and QALYs restricts full consideration of stillbirth; research and evidence supporting country-level priority and implementation is absent
Political context	Stillbirth is part of the unfinished agenda of the MDGs; stillbirth should be included in the post-2015 agenda; the stillbirth rate is used as an indicator or a target for mortality reduction	The global agenda has moved beyond the MDGs: the Global Strategy 2016–30 envisions an end to preventable stillbirths; the WHA is demanding accountability, monitoring, and progress reports as part of ENAP; targets set by the highest burden countries would, if met, reduce stillbirths worldwide by at least 25%	Specific targets for stillbirth reduction are not in the Global Strategy 2016–30 or the Sustainable Development Goals, only in ENAP; cultural challenges surrounding babies dying in stillbirth, including stigma and absence of value, are barriers to country adoption
Actor power	International organisations should explicitly call for and monitor stillbirth reduction; parental organisations need improved integration with global MNH organisations	Organisations increasingly prioritise stillbirth prevention, compared with their previous activities; the UN agencies are accountable to the Global Strategy 2016–30 for ending preventable stillbirths	Global leadership is too weak; organisations interact with committed individuals rather than stillbirth specific mandates; political and country actors are scarce; parental groups need greater involvement in global advocacy; monitoring and evaluation is too scarce to support country advocacy

MNH=maternal and newborn health. ENAP=Every Newborn Action Plan. EPMM=Strategies toward Ending Preventable Maternal Mortality. CRVS=civil registration and vital statistics. WHA=World Health Assembly. DALYs=disability-adjusted life-years. QALYs=quality-adjusted life-years. MDGs=Millennium Development Goals.

Table 2: Progress and unfinished business for agenda setting and priorities for stillbirths

Panel: The India Newborn Action Plan

In September, 2014, the Indian Ministry of Health and Family Welfare adopted the India Newborn Action Plan, which includes a so-called single-digit stillbirth target (ie, a target to reduce stillbirth to less than ten per 1000 births) for 2030—the first national stillbirth prevention target. The plan is based on integrated interventions in antenatal care and care at birth for stillbirth prevention and newborn survival, linked to an in progress roll-out of a national stillbirth monitoring scheme capturing rates and causes. A National Nodal centre at the Postgraduate Institute of Medical Education and Research, Chandigarh, India, and the Technical Advisory Committee on Stillbirths, under the leadership of the Joint Secretary of the Indian Ministry of Health and Family Welfare, supports this plan.

The convergence of three streams of scientific and public health work and advocacy were instrumental in this development. First, India committed to a 2011 WHO initiative for the elimination of transmission of HIV and syphilis from mother to child. To monitor and achieve the goals to eliminate congenital syphilis, stillbirth was a key indicator for mother-to-child transmission and information about cause-specific stillbirth rates were needed. With support from WHO Regional Office for South-East Asia and the US Centers for Disease Control and Prevention, ten sentinel sites were organised for stillbirth monitoring, providing data for the burden and causes of stillbirth. Second, mortality statistics showed that 56% of deaths in children younger than 5 years were newborn babies. To reduce child mortality in India, this focus became a priority in professional communities. Research and inconsistent national stillbirth estimates provided evidence showing a substantial proportion of newborn deaths were reported as stillbirths rather than an unsuccessful neonatal resuscitation. A strong

sense emerged that stillbirths needed to be monitored together with newborn deaths to provide improved data and indicators of care provision for babies and mothers to support further improvements. Third, advocacy by the *Lancet* Stillbirths Series and WHO Regional Office for South-East Asia increased awareness of stillbirths, and experts in obstetrics and gynaecology became champions for stillbirth prevention in national discussions. With the political endorsement and support for the Every Newborn Action Plan, continuing efforts by professionals and scientists converged with political priority to include scale-up of monitoring and targets for stillbirth reduction in the India Newborn Action Plan.

Several elements were important to enable this development. Evidence emerged that most stillbirths were preventable with simple interventions similar to those for the prevention of newborn mortality. A national consensus showed that improved data were needed for babies dying as newborns or as stillbirths, and that these data were important indicators of care, in particular in the setting of reduced maternal mortality. Additionally, a consensus was met for definitions of early and late stillbirths and for the use of an adapted Causes of Death and Associated Conditions classification. The sentinel sites had proven the feasibility of stillbirth monitoring as a template for national scale-up of monitoring that would support the continuing national child screening programme for birth defects, particularly in view of the increase in facility deliveries beyond 80% promoted by the Indian Ministry of Health and Family Welfare. And finally, the existence of national champions among professionals supporting global advocacy created political support for the India Newborn Action Plan stillbirth targets and monitoring.

providing programmatic guidance. In 10 months, 39 low-income and middle-income countries had provided commitments to the plan.⁵² In India, the adoption of key themes from the *Lancet* Stillbirths Series, including global advocacy, national leadership and champions, and allies in maternal and newborn health providing evidence for feasibility of national stillbirth monitoring and prevention, were all instrumental for implementation of the India Newborn Action Plan (panel). By August, 2015, of the ten countries contributing 65% of stillbirths worldwide,⁴ five countries had written or were writing sharpened maternal and newborn health plans inspired by the Every Newborn Action Plan, with four countries including stillbirth reduction targets (appendix). Enforcement and funding associated with these plans vary, and many plans devolve implementation to subnational levels. Of the remaining five countries, only one included a stillbirth target in their most recent maternal and newborn health plan. Stillbirths globally would be reduced by a quarter if the five countries with stillbirth targets met their goals. Some countries specifically omit stillbirth from their newborn action plans

because of their cultural norms that lead to stillbirths being perceived as a lesser concern than newborn deaths.

Of the 67 low-income and middle-income countries that had accessible health plans, only 15 plans mentioned stillbirths, of which seven were made more recently than 2011 (appendix). Interventions recommended by the *Lancet* Stillbirths Series were modestly addressed in the health plans with mentions of: folic acid supplementation (12%), syphilis detection and treatment (26%), caesarean sections and comprehensive emergency obstetric care (66%), and magnesium sulphate for eclampsia (24%).

Community actions, such as birth planning and transportation, social and bereavement support, and addressing stigma, have been only captured in these health plans if preceded by a concerted national policy. So, although our findings underestimate community action, we found hardly any health plans that promoted such activities. No country health plans responded to the *Lancet* Stillbirths Series' calls to act against stigma and provide bereavement support. The *Lancet* Stillbirths Series called for empowerment of women and families,

but although stigma was acknowledged to prevent women from realising their reproductive rights, none of the key UN entities working for the empowerment and rights of women address stigma, taboos, and abuse after stillbirth or newborn death.^{53–56} Additionally, worldwide efforts to promote improved mental health have no focus on such topics.⁵⁷

Because stillbirths have been outside of the norms of the Millennium Development Goals, hardly any funding from donors reporting to the Organisation for Economic Co-operation and Development's database has targeted stillbirth prevention. Funding for reproductive, maternal, and child health has increased substantially with the Millennium Development Goals, reaching more than US\$13 billion in 2013 alone.¹ By contrast, only four projects mentioned stillbirth in the entire 12-year funding period analysed (2002–13); only two of them funded implementation programmes valued at less than \$3.0 million overall. During that same period, more than 80 disbursements for malaria in pregnancy and 35 for syphilis were also funded but their effects on stillbirth were unstated.

Stillbirth monitoring and research

For the global maternal and newborn health community to coalesce effectively for stillbirth prevention, lessons from maternal and newborn mortality suggest the need for agreement on credible measures of stillbirth burden and causes, a classification of stillbirth to present them, and evidence for simple and cost-effective interventions with indicators for monitoring (figure 1).^{22–25}

Although stillbirths have not been on the worldwide agenda, civil registration and systems for vital events have been prioritised and strengthened.²⁸ Data sources for the new global estimates of stillbirths, the first since 2011, show improvement in availability of data at the country level with 38 countries having no data compared with 68 countries in 2009.⁵ Further improvements are expected due to stillbirths being included in WHO 100 Core Health Indicators⁵⁸ and the UN Inter-agency Group for Child Mortality Estimation's monitoring programme.⁵² At the 2015 World Health Assembly, the slow reduction of stillbirths was reported with the Millennium Development Goals for the first time, due to reporting requirements for the Every Newborn Action Plan.^{37,52,59,60} Although the *Lancet* Stillbirths Series was published in time to affect the new Global Strategy, selection of the Sustainable Development Goals targets, starting in 2012, was guided by political recommitment to the Millennium Development Goals.¹⁶ The Sustainable Development Goals likewise have targets for maternal and child mortality, but not stillbirth.¹⁶ The Global Strategy for 2016–30 and Global Financing Facility, politically committed to support the Sustainable Development Goals, therefore do not include stillbirth targets.^{17,18}

Dissimilar stillbirth definitions continue to hamper comparisons between countries.^{4,5} 40% of data in the

global estimates rely on definitions other than WHO's.⁵ Rights and care in pregnancy rely on gestational age, whereas WHO's stillbirth definition relies on birthweight.⁶¹ This definition does not fit national legislation or data, and WHO refrained from using their definition for the global stillbirth rates, targets, and 100 Core Health Indicators.^{5,37,58} Disaggregated data, such as timing, causes, and geography, are scarce. Only 36% of countries reported intrapartum mortality, and even fewer countries reported causes of death.^{4,5,62} Subsequent to the call for a global classification by the *Lancet* Stillbirths Series,^{2,6,8,10} WHO collaborated with scientific groups to inform a new approach to perinatal mortality classification with use of the International Classification of Diseases (ICD-PM),⁶² modelled on the maternal mortality classification, known as ICD-MM.⁶³ The *Lancet* Stillbirths Series reported that ICD-10 does not capture important fetal and placental categories for stillbirths,⁶ and the 2018 revision of ICD-11 must address this underlying weakness. Capacity to identify causes of death of stillbirths might have been weakened: although the 2007 WHO Verbal Autopsy Tool adequately defined newborn deaths and stillbirths by time of death, with various causes, the 2012 revision requires reporting stillbirth as the cause of stillbirth (only distinguishing fresh from macerated).^{64,65} With this guidance, verbal autopsies cannot inform ICD-PM appropriately.

Data for action is severely restricted because of a scarcity of monitoring of effective interventions with population-based data. Contact with care providers does not equal women having received any of the interventions recommended by the *Lancet* Stillbirths Series, nor does this contact reflect receipt of the signal functions of basic and comprehensive emergency obstetric care, which constitute effective coverage of quality care.^{7,66} Present estimates are largely based on household surveys with only a few indicators of effective coverage (table 3),^{67,68} leaving most essential interventions unmonitored. Additionally, only a subset of low-income and middle-income countries have had a national survey including key indicators after 2011: 54% of countries reported on intermittent malaria prevention in pregnant women, 58% reported on insecticide-treated bednets, and 10% reported on caesarean section rates (table 3).^{67,68}

Metrics for monitoring and research of stillbirth are improving. The Every Newborn Action Plan metrics group is developing an action plan for indicators, methods, and institutionalisation of metrics in national and global architecture.⁶⁹ A direct response to the *Lancet* Stillbirths Series and the accountability agenda was an initiative by WHO and the Norwegian Institute of Public Health to strengthen health information systems, specifically electronic health registries tracking women and children across the continuum of care.⁷⁰ This eRegistries framework integrates process and outcome indicators, including stillbirth, for screening and management, as well as guidance for electronic solutions, and ethical governance

	Population data indicators				Facility data*		
	Screening process (coverage)	Screening outcome	Management process (coverage)	Management outcome	Supplies available	Staff trained	Ever implemented
Prepregnancy							
Folic acid supplementation or fortification†	NA	NA	..	..	5/7	4/7	3/7
Family planning	NA	NA	31%	..	5/7	4/7	3/7
Antenatal (contact)							
One or more antenatal care visits	NA	NA	84%	..	NA	NA	NA
Four or more antenatal care visits	NA	NA	56%	..	NA	NA	NA
Antenatal (basic)							
Essential package‡	..	..	..	..	4/7	4/7	3/7
Iron and folic acid supplementation	NA	NA	..	..	4/7	2/7	3/7
Prevention of malaria (IPTp; ITN)†	NA	NA	27%; 37%	..	4/7	4/7	4/7
Detection and management of syphilis†,§	43-8%	2-4%	37%	..	5/7	5/7	5/7
Detection and management of HIV (including PMTCT)	..	3%¶	67%||	17%||	6/7	4/7	6/7
Cigarette smoking cessation during pregnancy†	..	..	..	..	0/7	0/7	0/7
Antenatal (advanced)							
Detection and management of fetal growth restriction†	..	..	..	..	1/7	0/7	1/7
Detection and management of hypertensive disease†,**	..	..	..	..	3/7	0/7	1/7
Detection and management of diabetes mellitus†	..	..	..	..	1/7	2/7	0/7
Induction at 41 weeks or more of gestation†	..	..	..	..	0/7	0/7	1/7
Intrapartum (contact)							
Skilled attendant at birth	NA	NA	66%	..	NA	NA	NA
Facility delivery	NA	NA	63%	..	NA	NA	NA
Intrapartum (all births)							
Social support during childbirth	NA	NA	..	..	0/7	0/7	0/7
Intrapartum (BEmOC)							
Anticonvulsants (ie, magnesium sulphate)†	..	..	..	..	7/7	2/7	3/7
External cephalic version	..	..	..	..	0/7	0/7	0/7
Neonatal resuscitation††	..	..	..	..	6/7	3/7	6/7
Intrapartum (CEmOC)							
Caesarean section rates†,‡‡	..	..	10%	..	3/7	2/7	4/7
Partograph use	..	..	10%§§	..	4/7	1/7	1/7

Table includes all interventions recommended in the *Lancet Stillbirths Series* (2011) for stillbirth reduction, plus essential antenatal or childbirth interventions or screening tools for maternal or prenatal health, and the contacts needed to deliver those interventions. Excluded are interventions for the benefit of the newborn or mother only after delivery. NA=not applicable. IPTp=intermittent preventive treatment of malaria in pregnancy. ITN=insecticide-treated bednets. PMTCT=prevention of mother-to-child transmission. BEmOC=basic emergency obstetric care. CEmOC=comprehensive emergency obstetric care. *Refers to the number of surveys which collect this type of data; at least 51% of high-burden countries have done a nationally representative facility survey with one of the methods identified. †Shown to have a proven impact on stillbirth, in some settings. ‡Should include measurement of blood pressure, anaemia, and identification of pre-eclampsia. §WHO Global Observatory: 56 countries with process indicators, 62 countries with outcomes, 31 countries with coverage able to be estimated. ¶Modelled for 2013.⁶⁹ ||Management indicator is paediatric transmission rate.⁶⁸ **Includes calcium supplementation, low-dose aspirin, and antihypertensive drugs. ††Included because of the frequent misclassification of neonatal death as stillbirth. ‡‡Proportion of all births for which a caesarean section was done, irrespective of need. §§Caesarean sections serve as a process indicator for management after the use of a partograph, whereas partographs are screening indicators, at least partially for caesarean section.

Table 3: Coverage of indicators of intervention for stillbirth prevention

of data.⁷⁰ Sustainable electronic health information systems are now widespread across low-income and middle-income countries⁷⁰ with 27 countries having written eHealth strategies, half specifically in support of women's and children's health.⁷¹ Electronic solutions create unprecedented opportunities,^{70,72,73} potentially combining health records for care providers with a health registry for public health monitoring and targeting.⁷⁰ According to a survey⁷⁰ of public health officials from low-income and middle-income countries, four of

five countries register data for pregnancy, birth, and child health—of whom three quarters are in transition with both paper and electronic reporting. The new global roadmap for Measurement and Accountability for Results in Health^{74,75} specifically commits to closing the gaps in maternal and newborn health data for effective coverage and accountability for every baby. Civil registration should register all births and health information should be collected electronically in real-time where these data are created (ie, in communities and facilities), including

integrated maternal and perinatal surveillance and response, in all countries by 2030.^{74,75}

The *Lancet* Stillbirths Series identified research priorities, but standard search functions proved inefficient to assess alignment with these recommendations because many were complex combinations and subsets of ideas.¹⁰ Qualitative analysis software identified only 11% of abstracts related to stillbirth to be potentially linked to the *Lancet* Stillbirths Series priorities, but with a substantially greater proportion in concordance in low-income and middle-income countries (appendix). Although the volume of stillbirth research increased three fold since 2000, the amount is only 20% of research relating to newborns, which has increased similarly. The greatest increase in stillbirth research was in low-income and middle-income countries. The annual number of registered trials for maternal and newborn health including terms relating to stillbirth increased by 29% in 2011–15 relative to 2008–10. Total funding for research focused on stillbirth from 11 of the largest research funders (appendix pp 43–45) amounted to \$50 million between 2012 and 2014, constituting only 3% of overall maternal and newborn health research funding. Compared with the average annual funding over 2006–10, research funding of maternal and newborn health has not changed whereas research into stillbirth increased by 22% (appendix).

Leadership and partnerships

Strong leadership and partnerships are needed to ensure change for prenatal health and survival (figure 1). The results from global health network studies have shown that the emergence and effectiveness of leaders and networks is shaped by issue characteristics and political context.²⁸ The severe consequences and tractability of stillbirth are issue characteristics that typically strengthen networks (table 2). The policy environment of potentially strong allies with interests that align also strengthens networks. Simultaneously, funding gaps and exclusion of stillbirths from the policy supernorms advanced by the Millennium Development Goals have hampered the effectiveness of a global stillbirth network.²⁸ A moment of opportunity to affect decision makers was essential to create priority for maternal mortality;^{22,31} a moment that might now exist for stillbirth with the new Global Strategy. Four key features from a new framework for understanding global health networks are drawn on to explore the stillbirth network: leadership, governance, composition, and framing strategies.²⁸

The *Lancet* Stillbirths Series in 2011 originated from an initiative by the leadership in the International Stillbirth Alliance, an advocacy and knowledge group creating a network of parental and scientific organisations, and the then WHO Department for Making Pregnancy Safer. With leadership from *The Lancet's* Editor, a group of individual scientists was assembled to develop the Series, including scholars in

global maternal and newborn health policy. These previously disconnected groups, together with funding agencies and others specifically approached to support the development and dissemination of the *Lancet* Stillbirths Series, created the core of the global stillbirth network; 33 organisations working in maternal and newborn health were assessed by an organisational network analysis shown in this Series.¹⁹ The context of publishing deadlines for the *Lancet* Stillbirths Series forced the emerging network of parental, scientific, and policy groups to coalesce rapidly on the framing strategies and themes published in the *Lancet* Stillbirths Series (table 2).

This network seems to be expanding. The network analysis identified the most highly connected organisations in terms of stillbirth work.¹⁹ Yet, on a formal organisational level, several groups had paid only minor attention to stillbirths before the policy opportunity of the new Global Strategy, according to their activity reports. Insufficient organisational commitment to stillbirth issues was a key theme in the qualitative interviews with organisation representatives, as the network continues to be generally dependent on a small group of committed individuals rather than their overall organisations. Respondents also reported an absence of strong political voice and individual advocates in the public domain; in particular, these organisations' representatives wished for a stronger presence of parental groups and voices in the broader stillbirth network (appendix).

The diverse composition of the network created opportunities to address stillbirths,²⁸ but the predominant composition of scientists and professionals, with insufficient inclusion of political and civil society actors, probably hampered progress for country implementation of action, similar to that which occurred for newborn survival.²⁹ Additionally, the organisations do not exploit the network efficiently. Among the organisations surveyed, on average each organisation only interacted (eg, information sharing or mutual commitments) with a fifth of potential network partners on stillbirth-related issues. Maternal and newborn-related interactions between these same organisations exhibited more than twice the number of connections on average.¹⁹

This network created for the *Lancet* Stillbirths Series was not a concerted effort by the global maternal and newborn health community, which should have had ownership of the issue. Without a formal governance structure, leadership is shared more by individuals than by organisations, mostly not at the level of top leadership. The *Lancet* Stillbirths Series was not based on commitments from the leadership of UN agencies nor did it call for them to assume their global governance responsibility.¹⁰ A key challenge reported by the organisations' representatives was that agencies, such as WHO, had not yet assumed the leadership role noted for the rest of the maternal and newborn health agenda. But the policy environment is in flux, both in terms of the reigning norms and in cooperating

allies of the growing stillbirth network. With stillbirths integrated into the Global Strategy 2016–30 and the reporting requirements of the Every Newborn Action Plan, the UN now has mechanisms for holding UN agencies accountable for leadership and governance for stillbirth.

Progress and unfinished business

We have noted clear progress in agenda setting and prioritisation (table 2). Although leadership for stillbirth has been too weak to overcome the barrier of the Millennium Development Goals' supernorm, the shift of norms and integration into the new Global Strategy might be a turning point for the neglect in attention for stillbirth. Uptake of themes from the *Lancet* Stillbirths Series in the worldwide discourse helps to explain why stillbirths have ascended on the agenda but also points to themes with insufficient adoption, such as the recognition that stillbirths are babies that die and that prenatal health is the biological foundation of life-long health for every newborn. The insufficient adoption of these themes suggests a communication issue for stillbirth to gain political priority. Reviewed sources strongly emphasised the need for effective integration of stillbirths within existing maternal and newborn health priorities and programmes, as did the *Lancet* Stillbirths Series^{2,9,10} and our interview respondents. The global maternal and newborn health discourse, naturally, is predominantly about health, not death (figure 2). All new initiatives go beyond survival. These initiatives are for maternal health and for newborns to survive and thrive. Stillbirth seems hard to fit into the positive health discourse and is relegated to mortality sections—often as a literal appendix: such as, maternal and newborn mortality (and stillbirth). This potential misconception of a poorly integrated issue is important. Stillbirth prevention calls for integrated action for prenatal health and survival from periconception through pregnancy and childbirth.^{2,7–10} Concerted communication that stillbirth prevention is promotion of prenatal health is needed: prenatal health relates to stillbirth in exactly the same way as neonatal and maternal health relates to neonatal and maternal death. At the core of public health programmes for women's and children's health, support for prenatal care through high quality antenatal and intrapartum care protects the mother and her baby,^{44,51,76} and represents a quadruple return on investments, saving the lives of mothers and newborns, preventing stillbirths, and additionally, improving child development.^{41,47}

We have noted progress in global policies and programme guidance, and crucially, the Global Strategy 2016–30 has combined the policies of the Every Newborn Action Plan and Strategies toward Ending Preventable Maternal Mortality^{17,45,47} with action for the continuum of prenatal health, including prevention of antepartum stillbirths, accounting for the majority of stillbirths. Without this progress, the global targets^{19,37} cannot be met, even with a reduction of intrapartum deaths by two-thirds.^{4,5} For health systems, clients, and providers,

integration is the only way forward. The policies inspired by the Every Newborn Action Plan include examples of countries introducing stillbirth targets, and conversely, countries that specifically omit stillbirth targets. These discrepancies exemplify that coordinated but specific action for stillbirths is needed for advocacy, policy formulation, monitoring, and research. Women's rights and mental health groups should be engaged. Cultural mores towards stillbirth must be countered: prenatal health affects the entire life-course; stillbirth prevention is prenatal health promotion; and to mothers, stillbirths are not numbers but babies that die. The assumption that stillbirth mortality will automatically reduce in parallel with maternal and neonatal mortality without focus is false; the average annual reduction rate for stillbirths (1·8%) in the past 15 years is substantially smaller than for newborn (3·1%) and maternal (3·4%) mortality.⁴

Notably, many interventions recommended by the *Lancet* Stillbirths Series are not yet standard. Few countries have adopted perinatal audits, which can reduce perinatal mortality if implemented appropriately.^{77–79} No action has been taken against stigma or for support of affected families.

The mortality effect of interventions shown with the Lives Saved Tool in this Series²¹ exemplifies the need for cause of death data to allow policy makers to develop investment and action plans.⁸⁰ Conversely, the exclusion of stillbirths from the calculation of disability-adjusted life-years in the Global Burden of Disease project, and of quality-adjusted life-years, restricts cost-effectiveness analyses and impedes the generation of evidence for investment in maternal and newborn health.⁸⁰

Stillbirth is included in maternal and newborn health investment cases, but so far with no accountability: no funding of substance has materialised. An increased traction of the triple return on investment within policies at the country level is plausible as funding of programmes by the Global Financing Facility requires an investment case,¹⁸ and the UN recommended OneHealth Tool incorporates Lives Saved Tool calculations for stillbirth.¹⁸

Progress has been made for metrics to monitor and research stillbirths, but monitoring and evaluation is far too scarce and infrequent to support country advocacy for priority and action.³² A universally adopted definition of stillbirth is needed in addition to a global repository to access such data. The in-progress revision of ICD-10 to ICD-11 should be an opportunity to formally revise WHO's stillbirth definition.

Stillbirth prevention through high quality care needs strengthened health systems, effective coverage, and health information systems.^{7,9,10,19,51,81} Countries monitoring stillbirth rates for progress towards targets will benefit from uniquely specific, sensitive, measurable, and actionable indicators of effective coverage—antepartum stillbirth for antenatal care and health promotion, and intrapartum stillbirth for care at

For more on the **Global Burden of Disease** see <http://www.healthdata.org/gbd>

For the **OneHealth Tool** see <http://www.who.int/choice/onehealthtool/en>

birth.^{7,82,83} The call to action from the Measurement and Accountability for Results in Health group understands that health information systems are an integrated part of health systems, and seamless communication of health information flowing at all levels of the health system is essential for quality of care. Care should be taken to select indicators that support countries' efforts to build sustainable actionable health information systems at point-of-care, rather than have these efforts undermined with indicators that are only available through household surveys.^{51,71}

Our findings on the status of research are promising, including a strong growth of research activities and alignment with research priorities in low-income and middle-income countries. Nonetheless, funding for stillbirth research is incommensurate with burden.

The global stillbirth network emerged with the *Lancet* Stillbirths Series but leadership still needs purposeful development, particularly to ensure country uptake. Institutions with the mandate to lead global efforts for maternal and newborn health are not as central as desired and organisations must commit strongly, not rely on committed individuals. Until now, the core global governance structure of the UN and partnerships for maternal and newborn health have mostly been followers for stillbirth prevention. In the era of the new Global Strategy, these organisations and partnerships must seize this potentially historic opportunity to strengthen targets for healthy lives and promote wellbeing for all, at all ages, through improved prenatal health and survival.^{19,84}

Contributors

JFF drafted the manuscript and led the review and analysis of reports and initiatives with IKF and SHL. IKF led the review and analysis of health plans, survey instruments, and research efforts and funding with CP. LF led the organisational network analysis and interviews. CP led the review and analysis of donor funding. AK, LD, NA, and NR compiled and reported the implementation of the Indian Newborn Action Plan. All authors commented and contributed to the content of the report, and read and approved the final version. JFF had full access to all the data in the study and had final responsibility for the decision to submit for publication.

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Declaration of interests

We declare no competing interests.

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